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## RESEARCH ARTICLE

### A new species of *Larinus* Dejean (Coleoptera: Curculionidae) from China

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**Abstract:** Based on specimens in the Natural History Museum (London), a new species of the genus *Larinus* Dejean, 1821 (Coleoptera: Curculionidae: Lixinae), *Larinus barclayi* **sp. nov.**, is described from China. The new species is assigned to the subgenus *Phyllonomeus* Gistel, 1856, compared with closely related species, and colour digital photographs of morphological characters are presented.

**Key words:** *Larinus*, Lixinae, Curculionidae, new species, China, Palearctic Region.

## Introduction

The genus of *Larinus* Dejean, 1821 is a member of tribe Lixini (Curculionidae: Lixinae), distributed across the Palearctic, Afrotropical and Oriental regions (Alonso-Zarazaga & Lyal 1999; Csiki 1934; Ter-Minasian 1967). According to the recent Catalogue of Palearctic Coleoptera, about 110 *Larinus* species are present in the Palearctic region (Gültekin & Fremuth 2013). This current paper presents a new species description from China based on the collection of the Natural History Museum, London. According to Gültekin & Fremuth (2013), nine species of *Larinus* are distributed in China: *Larinus vulpes* (Olivier, 1807), *Larinus serratulae* Becker, 1864, *Larinus carlinae* (Olivier, 1807), *Larinus griseopilosus* Roelofs, 1873, *Larinus iaceae* (Fabricius, 1775), *Larinus latissimus* Roelofs, 1873, *Larinus meleagris* Petri, 1907, *Larinus scabrirostris* Falderman, 1835 and *Larinus turbinatus* Gyllenhal, 1835. With this new species description the number of *Larinus* species in China reaches ten.

## Material and methods

Measurements were taken using an ocular micrometer attached to a Leica MZ75 stereomicroscope. Measurements used are defined as follows: body length = from anterior margin of eye to posterior margin of elytra; rostrum length = from apex of rostrum to anterior margin of eye, laterally; antennal insertion = ratio of distance from antennal insertion to anterior of rostrum to rostrum length; prothorax length = from anterior margin of pronotum to posterior margin of pronotum on midline. For morphological study, dry adults were placed in mild clean water overnight and the genitalia were dissected. Parts with muscles and other tissues were placed in 10% KOH overnight, cleaned with distilled water and 70% ethanol. Genitalia were observed and photographed in glycerine under a stereomicroscope. Genitalia once dissected were mounted dry, glued on paper under the pinned specimens from which they were dissected.

Photographs were taken with a Leica DFC 420 digital camera with macroscope using LeicaLAS software for montage. The digital images were then imported into Adobe Photoshop 8.0 and CorelDRAWX4 for labelling and plate composition.

The type material is deposited in the Natural History Museum, London. For morphological terminology, Lyal (2015) is followed.

Abbreviations used are T: tarsomere; F: funicle.

## Results

### *Larinus barclayi* sp. nov. (Figs 1-18)

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**Type material:** Holotypus (Fig. 1): ♂, [China], Tatsienlu-Kiulung, Chine Em. Reitter; Brit. Mus., 1934-449; Resem. to *variolosus* in Petri in Key (267) sp. n.?.. Paratypes: [China], Tatsienlu-Kiulung, Chine Em. Reitter; Brit. Mus., 1934-449, 2♀, 2♂.

### Description

Measurements: Body length range: 8.90- 10.60 mm. Holotypus ♂: body length 10.50 mm; rostrum length: 2.20 mm; rostrum width: 0.95 mm; interocular width: 0.90 mm; eye length 0.85 mm; eye width 0.40 mm; antennal insertion: 0.45x; length of scape: 1.00 mm; funicle segment length: F1: 0.23 mm; F2: 0.15 mm; F3: 0.10 mm; F4: 0.10 mm; F5: 0.10 mm; F6: 0.15 mm; F7: 0.20 mm; funicle segment width: F1: 0.20 mm; F2: 0.15 mm; F3: 0.15 mm; F4: 0.15 mm; F5: 0.17 mm; F6: 0.20 mm; F7: 0.30 mm; length of antennal club: 0.70 mm; width of antennal club: 0.35 mm; length of prothorax: 2.50 mm; width of anterior collar of prothorax: 0.40 mm; width of prothorax at anterior apex: 2.20 mm; width of prothorax at base: 4.00 mm; length of elytra: 7.30 mm; width of elytra at base: 4.90 mm; width of elytra at posterior two thirds: 5.10 mm; width of elytra at preapical depression: 4.00 mm; profemur width: 0.80 mm; protibia length: 2.90 mm; protarsus length: T1: 0.70 mm; T2: 0.35 mm; T3: 0.60 mm; T5: 1.10 mm; protarsus width: T1: 0.40 mm; T2: 0.50 mm; T3: 0.70 mm; T5: 0.20 mm.

Colouration and vestiture. Integument black, scape, funicle, dorso-anterior margin of prothorax, internal margins of elytra, apex of femur and tibia, unci and apical setal comb, T1 and T5, and tarsal claw chestnut-brown. Facets of eyes reflecting golden-greyish metallic colour. Body with greyish, short hairy pubescence, somewhat longer and semi-erect hairs

densely present on submentum, funicle, inner margin of tibia and femur. Greyish pubescence more condensed between elytral stria punctations, small spots of colour scattered on elytra (Fig. 1). Tuft of golden-greyish setae projecting from base of premucro to unculus. Epistomal corners bearing semi-erect tuft of setae, latero-basal margin of mandible, surface of prementum and base of first labial palp segment bearing sparse semi-erect setae.

Body subelliptical (Fig. 1), head spherical, forehead depressed centrally with a deep interocular pit. Eyes subelliptical, weakly convex. Surface of epifrons and forehead densely set with deep rounded punctures. Rostrum subcylindrical in dorsal view (Fig. 2), very slightly and gradually narrowed from base to the antennal insertion, epifrons moderately convex in mid part and with obscure short carina just before antennal insertion. Frons abruptly and strongly depressed transversely in mid part. Anterior margin of epistome emarginate, making two lobes. Ventral margin of scrobe very weakly and partly visible dorsally below antennal insertion. In lateral view, rostrum weakly curved, epifrons convex, surface with subelliptical punctures densely, inter-punctures forming tiny linear wrinkles. In ventral view, occipital and subgenal sutures merged, moderately raised, submentum depressed, prementum flat. Basal third of scape weakly curved and dorso-ventrally depressed, gradually widened from base to apex, clavate apically. Funicle segments compact, subconical, F2 and F3 equal to each other, with F4-F7 transverse and gradually widened to F7 which is widest. Club elongate and narrowly fusiform.

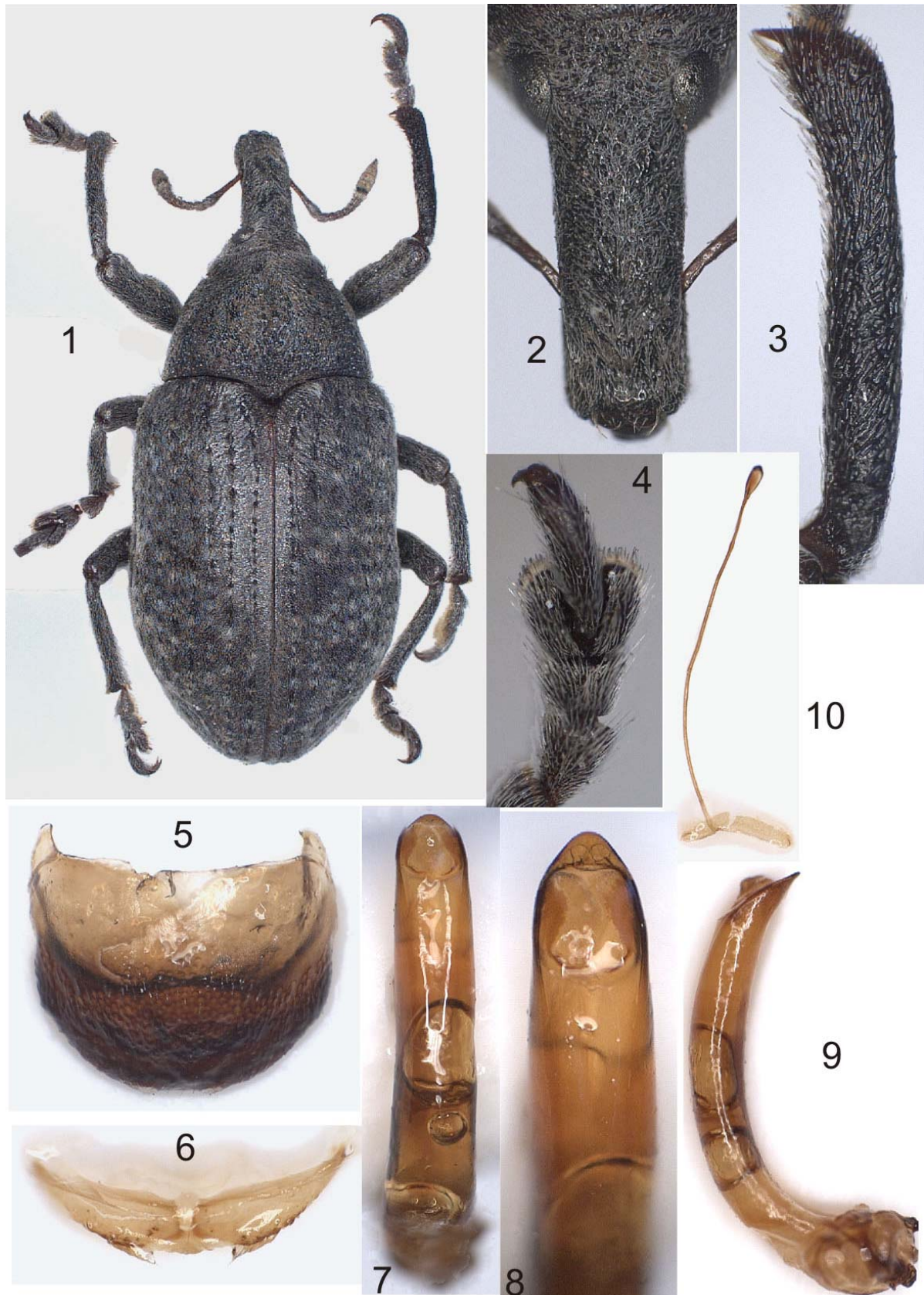
Prothorax subtrapezoidal (Fig. 1), basal margin sinuate, triangularly arched to elytra medially, lateral margins gradually narrowing from base to anterior, weakly constricted at anterior collar. Dorso-anterior margin evenly curved downward, ocular lobes slightly developed, bristles very short on it. Anterior margin of prosternum weakly emarginate. Intercoxal process developed with sharp apex, not reaching mid part of procoxae, hypomerall lobe constituted by two raised tubercles behind procoxae. Pronotal disc convex, strongly swollen in central part, midline canaliculate anteriorly, prescutellar depression starting behind swollen disc. Surface of pronotum with densely punctate with moderately-size subcircular punctures, interspace with short irregular wrinkles.

Elytra (Fig. 1) sides subparallel in basal one third, weakly emarginate immediately before mid part, expanded distinctly at posterior two thirds, then roundly and gradually narrowing toward apex. Elytral disc moderately convex, sloping distinctly downward at posterior quarter. Humeri moderately developed on interstriae 7-9, preapical prominences ill-developed on interstriae 4-5, preapical depressions distinct. Striae formed of subcircular superficial separate punctures. Interstriae flat, subequal in width.

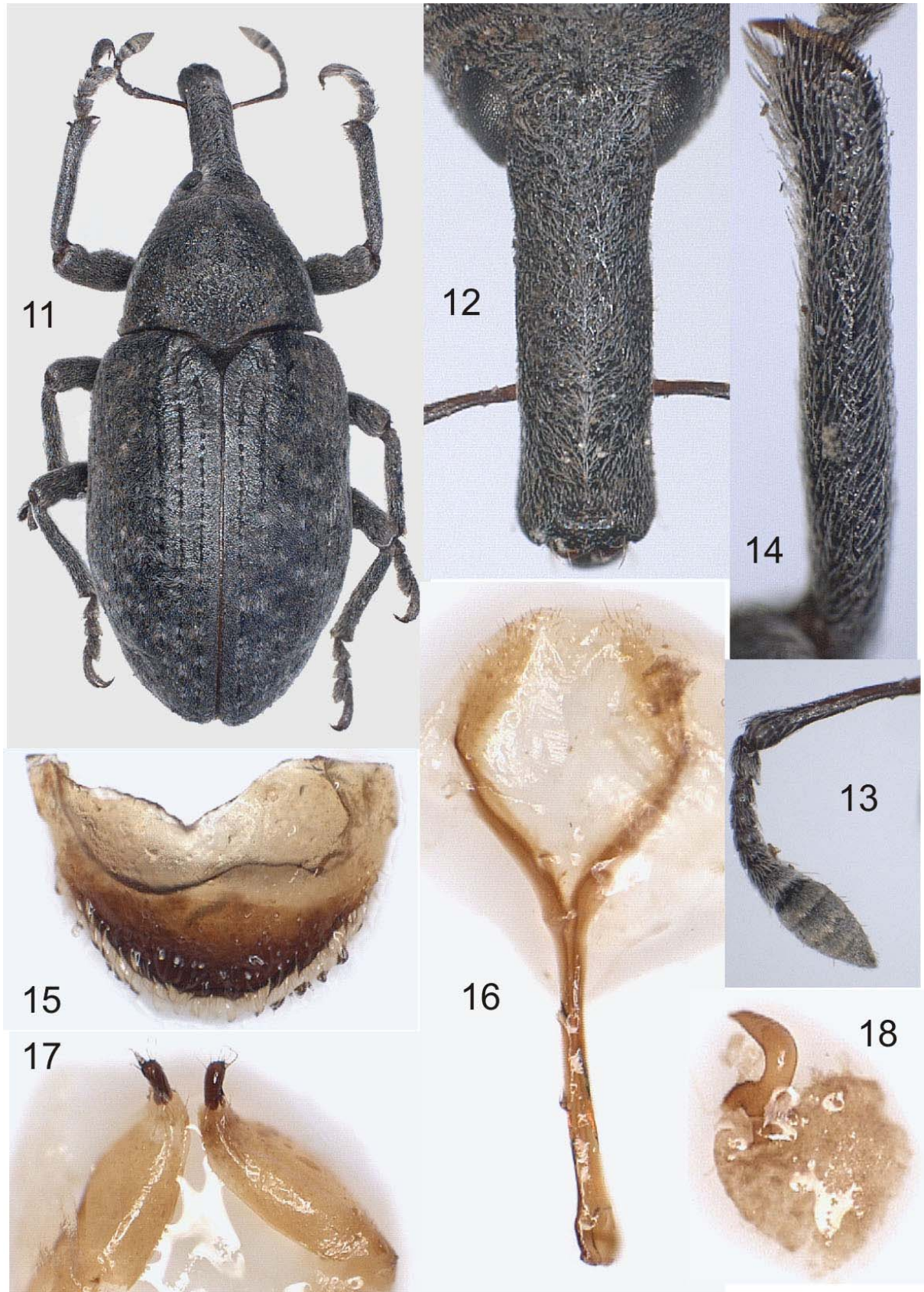
Legs stout, femora swollen medially, protibia (Fig. 3) very gently curved, apex slightly dilated, inner margin emarginate at apical half and serrate, bearing series of minute denticles, premucro small and concealed by tuft of setae. Apical setal comb present on anterior edge, setae tiny, short and densely packed. Meso- and metabia nearly straight, slightly and gradually widened toward apex, inner emargination weak on apical one third, premucro absent, apical setal comb longer and denser than on fore tibia. Tarsi (Fig. 4) wide, T1 asymmetric and triangular, T2 trapezoidal, T3 bilobed, T5 subcylindrical gradually widening toward apex. Tarsal claws contiguous basally, very divergent at apex.

Abdominal ventrites moderately convex, ventrite 1 depressed medially.

*Male terminalia and genitalia.* Tergite VIII subtrapezoidal (Fig. 5), basal half membranous, apical half well sclerotized; sternite VIII (Fig. 6) sublunate, hemisternites contiguous, posterior-lateral margin bearing a series of sparse and short hairs, spiculum gastrale very thin in form of a stick, curved, subequal in length to penis, basal plate well developed, apex clubbed. Penis (Figs 7-9) tubular and stout, dorsal wall membranous, lateral



**Figures 1–10.** *Larinus barclayi* sp. nov., holotype, male. 1, dorsal view of body; 2, rostrum, dorsal view; 3, protibia; 4, protarsus; 5, tergite VIII; 6, sternite VIII; 7, penis, in dorsal view; 8, penis, enlarged dorsal view apically; 9, penis, in lateral view; 10, spiculum gastrale.



**Figures 11–18.** *Larinus barclayi* sp. nov., paratypus, female. **11**, dorsal view of body; **12**, rostrum, dorsal view; **13**, antenna; **14**, protibia; **15**, tergite VIII; **16**, sternite VIII; **17**, gonocoxite; **18**, spermatheca.

and ventral walls moderately sclerotized, in dorsal view slightly and gradually narrowed to end of median orifice, recurved anteriorly (Figs 7-8). Shape of median orifice in dorsal view subtrapezoidal, ventral plate distinctly and triangularly narrowed to the apex; in lateral view curved (Fig. 9), slightly and gradually narrowed from anterior third toward apex.

*Female.* Body subelliptical (Fig. 11), rostrum cylindrical (Fig. 12), 0.35× as wide as long, rostrum subequal length of with pronotum, longer and slightly thinner than male, antenna inserted at anterior 0.40×, base of F2 narrower than F3 (Fig. 13), protibia straight (Fig. 14), inner margin more gently emarginate in anterior half.

*Female terminalia and genitalia.* Tergite VIII (Fig. 15) narrowly trapezoidal, basal half membranous with bare surface. Sternite VIII (Fig. 16) Y-shaped, apodeme 1.55× as long as lateral arms, lateral arms angularly widened externally, vertical arms less sclerotized; posterior margin bearing series of sparse semi-erect hairs. Gonocoxite (Fig. 17) membranous, tapered posteriorly making an obtuse, short stylus basally slanted outward, surface bearing 2-3 semi-erect hairs, stylus subcylindrical, well sclerotized, of moderate length, weakly curved and slanted outward, slightly constricted medially, truncate apex bearing 5-6 erect hairs. Spermatheca (Fig. 18) C-shaped, both nodulus and ramus moderately developed, anterior part of cornu tapering with sharp apex.

**Etymology:** The name of the new species is derived from that of Maxwell V. L. Barclay (Natural History Museum, London), to whom it is dedicated.

**Differential diagnosis:** The new species is assigned to the subgenus *Phyllonomeus* Gistel, 1856 based on the cylindrical rostrum lacking sulci and a strong carina on the epifrons. The new species is closely related *Larinus adspersus* Hochhuth, 1847. The body shape of the new species is more similar to *L. adspersus*, though the latter is of smaller size, with tibiae thinner, pro- and mesotibiae distinctly curved in male, forehead narrow, rostrum thinner, without frontal transverse depression, pronotum convex but without anterior canaliculate depression and central swollen disc. The general body view is also somewhat similar to that of *Larinus rectinasus* Petri, 1907, but this species is easily recognized by having dense semi-erect piliform scales on the underside of body, lateral margins of prothorax, antero-basal corner of elytra and legs. The penis of the new species is similar to that of *Larinus sturnus* (Schaller, 1783), *Larinus griseopilosus* Roelofs, 1873, *L. rectinasus* and *L. adspersus*. Despite this similarity, the ostium of the new species is narrow subtrapezoidal, more strongly tapering with a somewhat sharp triangular apex.

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